**ECE ORDER #** 

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EG&G ROCKY FLATS, INC

EG&G ROCKY

ROCKY FLATS PLANT PO BOX 464 GOLDEN COLORADO 80402 0464 • (303) \$ [700]

December 9, 1993

93-RF-15031

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16% Dr Frederick R Dowsett Colorado Department of Health Hazardous Materials and Waste-Management Division HMWMD-HWC-82 4300 Cherry Creek Drive South Denver, Colorado 80222-1530

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RESPONSE TO REQUEST FOR INFORMATION ON REACTIVE CHEMICALS -ALS-658-93

During a meeting held at the Rocky Flats Plant (RFP) on December 1, 1993, involving members of your staff, members of my staff and representatives of the United States Department of Energy, Rocky Flats Office (DOE, RFO), several issues related to the management, storage and treatment of peroxide forming compounds were discussed. This letter serves as follow up to those discussions, as requested by Cathy Alstatt of your staff

Issue 1

Cathy Alstatt questioned the rationale for constructing a new Ultraviolet (UV) Oxidation unit in Building 881 for the purpose of destroying peroxide forming compounds rather than employing the existing system located at Operable Unit (OU)-1

Response

There are several technical concerns associated with the use of the UV Oxidation system located at OU-1 for destruction of peroxide forming compounds. The following is a brief summary of those concerns

The OU-1 unit is designed for destruction of extremely low levels of organic compounds in ground water. There are specifically identified target contaminants which the system is designed to treat, which do not include the peroxide forming compounds. The system operates at a wavelength which may not effectively treat peroxide forming compounds possibly resulting in the formation of potentially hazardous byproducts such as dioxins. The unit being constructed in Bldg 881 will be designed to operate at a wavelength appropriate for destruction of peroxide forming compounds

There is a lack of adequate monitoring equipment that would be required to safely and adequately treat these compounds. A high pressure liquid chromatograph (HPLC) is required to identify successful destruction of the compounds being treated. Treatment, such as is proposed for the unit being installed in Bldg 881, would be monitored using this equipment During operation, a given batch would be recycled through the system until the instrument indicates complete destruction. Without this equipment, it would be impossible to identify successful destruction, or the need to recycle a batch through the system, prior to the effluent being collected in the holding tank and analyzed. This would allow potential cross contamination with effluent from Environmental Restoration operations resulting in additional generation of hazardous waste

The existing design would likely generate heat sufficient to cause certain organic compounds, if not adequately destroyed, to volatilize and be lost to the atmosphere in vented receiving tanks

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HORIZED CLASSIFIER SIGNATURE CNV DNYCKS

I FEPLY TO RFP CC NO none

ACTION ITEM STATUS

Partial/Open Closed LTR APPROVALS

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RF -6469 (Rev 9.93)

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A number of the peroxide forming compounds are P and U-listed hazardous wastes. The "Derived From" rule states that residues resulting from the treatment of listed hazardous waste are also listed hazardous waste. The existing design of the unit at OU-1 does not allow for adequate management of listed hazardous waste effluent. Effluent from the system is currently discharged to the south interceptor ditch which is not a hazardous waste management unit. Significant modification would be required to allow the waste to be transported to the Bldg 374 evaporator for further treatment. (EG&G realizes that Bldg 374(Unit 42) is not approved to treat P and U wastes at this time. EG&G will submit a request for change to interim status prior to transporting any waste water to Bldg. 374)

Finally, there are no interim status or permitted storage facilities available at OU-1 which would be adequate for storing and batching peroxide forming compounds prior to treatment. If managed in Bldg 881 as a treatability study, the chemicals could be transferred to that location to be stored as needed under the treatability study exemption storage provisions.

In summary, resolution of these concerns would require such extensive re-engineering and modification to the existing unit at OU-1 that it is not cost or schedule effective to consider using this system for these chemicals. The cost of installing a bench scale unit in Bldg 881 would be significantly lower than the cost of modifying the unit at OU-1. Furthermore, appropriate modifications cannot be determined until a bench scale test of the different groupings of peroxide forming compounds has been conducted.

#### Issue 2

Cathy Alstatt questioned the appropriateness of EG&G's intention to treat stabilized peroxide forming compounds under the "Treatability Study" provisions in the Colorado Hazardous Waste Regulations

## Response

EG&G feels that this activity clearly falls under these provisions. The definition of "Treatability Study" found in 6 CCR 1007-3, § 260 10 includes, "a study in which a hazardous waste is subjected to a treatment process to determine (1) Whether the waste is amenable to the treatment process, (2) what pretreatment (if any) is required, (3) the optimal process conditions needed to achieve the desired treatment, (4) the efficiency of the treatment process for a specific waste or wastes, or (5) the characteristics and volumes of residuals from a particular treatment process." A "Treatability Study" is not a means to commercially treat or dispose of hazardous waste."

While it is true that UV Oxidation is a proven treatment technology for destruction of organics, the parameters listed in the definition above are, as yet, undefined for the peroxide forming wastes targeted for this treatment. As outlined in issue 1 above, a bench scale test would be required to define those parameters before adequate treatment could be assured. It is also true that, given the limited population of these wastes currently targeted for this treatment, it is possible that the entire existing population of these wastes may be consumed during the study. However, there is no doubt that these types of wastes will continue to be found at RFP, and if the technology proves favorable, RFP will ultimately seek a modification to the existing RCRA permit to include this treatment process. RFP feels that it is premature to request a treatment permit for a unit which may not be operable.

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## Issue 3.

Cathy Alstatt questioned the practice of storing containers of "List A" chemicals (isopropylether) for longer than the suggested three month time period outlined in the National Safety Council Data Sheet 1–655 Rev 87 (Enclosure 1)

Response:

There are two containers in question; both are containers of isopropyl ether in volumes of no greater than 30 ml, each. One container is stored in Bldg. 881, and one is in T993A. Both containers have been tested/stabilized twice, at which time extra inhibitor was added to further inhibit peroxide formation. These containers pose no particular threat to personnel during normal packaging and transfer operations in preparation for eventual treatment. (See enclosed letter from John Listemann, EG&G, Occupational Safety.)

## Issue 4:

CDH recommended that all previously stabilized reactive chemicals destined for further treatment (UV Oxidation) continue to be stored in their current locations rather than be transferred to permitted or interim status storage pending treatment

Response

This letter serves as documentation that, as directed by Cathy Alstatt of your staff, these containers will remain in their current locations (see Enclosure 3) until January 28, 1994, when it is our intent to transfer the chemicals to Bldg 881 to be treated. These wastes will be managed consistent with applicable Rocky Flats Plant policies and procedures for managing wastes in Satellite and 90—Day Accumulation Areas, rather than in permitted or interim status storage areas.

We are looking forward to discussing our response to Ms. Alstatt's issues at our next biweekly meeting. In the interim, if you have any questions, please contact me at 966-5251

A L Schubert, Director Waste Programs

EG&G Rocky Flats, Inc.

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Ong and 1 cc - Dr Frederick R Dowsett

Enclosures: As Stated (3)

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J C Leifer - DOE, RFO

J J Rampe -

G L. Potter - EG&G Rocky Flats, Inc

# LOCATIONS OF STABILIZED PEROXIDE FORMING CHEMICALS

Building	<u>Room</u>	<u>Unit Type</u>
123	156	Satellite
123	125	90-Day
701	N/A	90-Day
771	West Dock	90-Day
T993A	N/A	Satellite
881	234	90-Day